

Chapter 9: Developing  
and Acquiring  
Information Systems

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# Definisi

- You can see the computer age everywhere but in the productivity statistics (Solow, 1987).
- IT Productivity Paradox dapat didefinisikan sebagai ketidakselarasan antara investasi penggunaan Teknologi Informasi dengan peningkatan kinerja. (Solow, 1987).

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# Penelitian Sebelumnya

- Pada periode pertama (1980 – 1994), sebagian besar peneliti menyatakan bahwa tidak ada keterkaitan antara investasi Teknologi Informasi dengan kinerja.
- (Roach, 1987) membandingkan kinerja dari pekerja Teknologi Informasi dan pekerja pabrik
- Hasil yang didapatkan cukup mengejutkan, selama tahun 1970-1980 kinerja pekerja pabrik mengalami peningkatan sebesar 16.9%. Sedangkan kinerja pekerja Teknologi Informasi yang didukung dengan investasi besar-besaran hanya meningkat sebesar 6.9%. Disimpulkan bahwa Teknologi Informasi menimbulkan efek negatif pada kinerja

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# Factors leading to the IS productivity paradox



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# ISU IT PRODUCTIVITY PARADOX

- (1) adanya kesalahan pada pengukuran masukan dan keluaran,
- (2) adanya kesalahan pada manajemen Teknologi Informasi,
- (3) pendistribusian manfaat dari Teknologi Informasi,
- (4) jeda pada pembelajaran, penyesuaian dan restrukturisasi teknologi informasi.

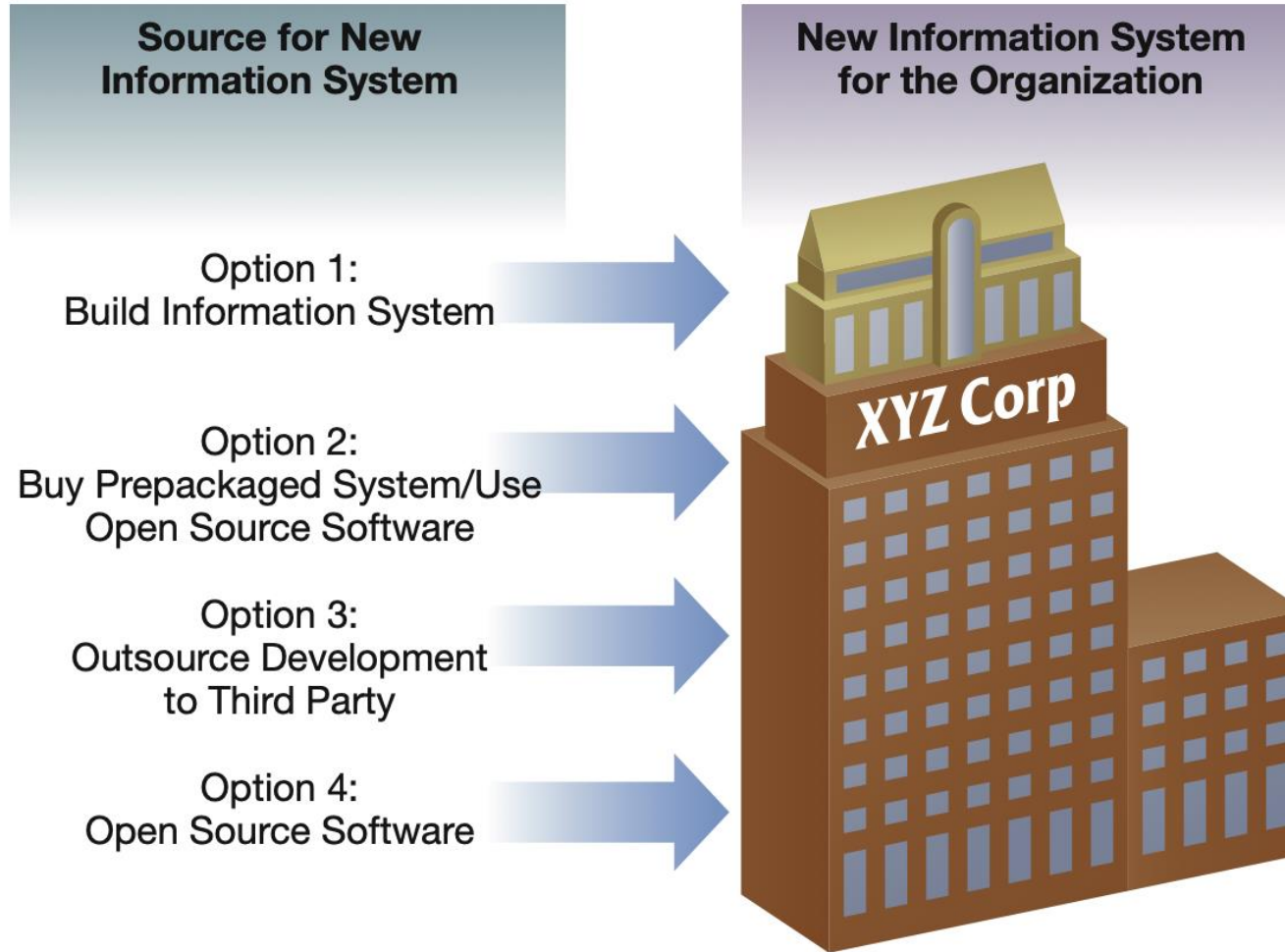
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# Identifying Costs

One goal of a cost–benefit analysis is to accurately determine the total cost of ownership (TCO) for an investment. TCO is focused on understanding not only the total cost of acquisition but also all costs associated with ongoing use and maintenance of a system.

	2014	2015	2016	2017	2018
Costs					
Non-recurring					
Hardware	\$ 20,000				
Software	\$ 7,500				
Networking	\$ 4,500				
Infrastructure	\$ 7,500				
Personnel	\$100,000				
Recurring					
Hardware		\$ 500	\$ 1,000	\$ 2,500	\$ 15,000
Software		\$ 500	\$ 500	\$ 1,000	\$ 2,500
Networking		\$ 250	\$ 250	\$ 500	\$ 1,000
Service fees		\$ 250	\$ 250	\$ 250	\$ 500
Infrastructure			\$ 250	\$ 500	\$ 1,500
Personnel		\$ 60,000	\$ 62,500	\$ 70,000	\$ 90,000
Total costs	\$139,500	\$ 61,500	\$ 64,750	\$ 74,750	\$110,500
Benefits					
Increased sales	\$ 20,000	\$ 50,000	\$ 80,000	\$115,000	\$175,000
Error reduction	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000
Cost reduction	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
Total benefits	\$135,000	\$165,000	\$195,000	\$230,000	\$290,000
Net costs/benefits	\$ (4,500)	\$103,500	\$130,250	\$155,250	\$179,500

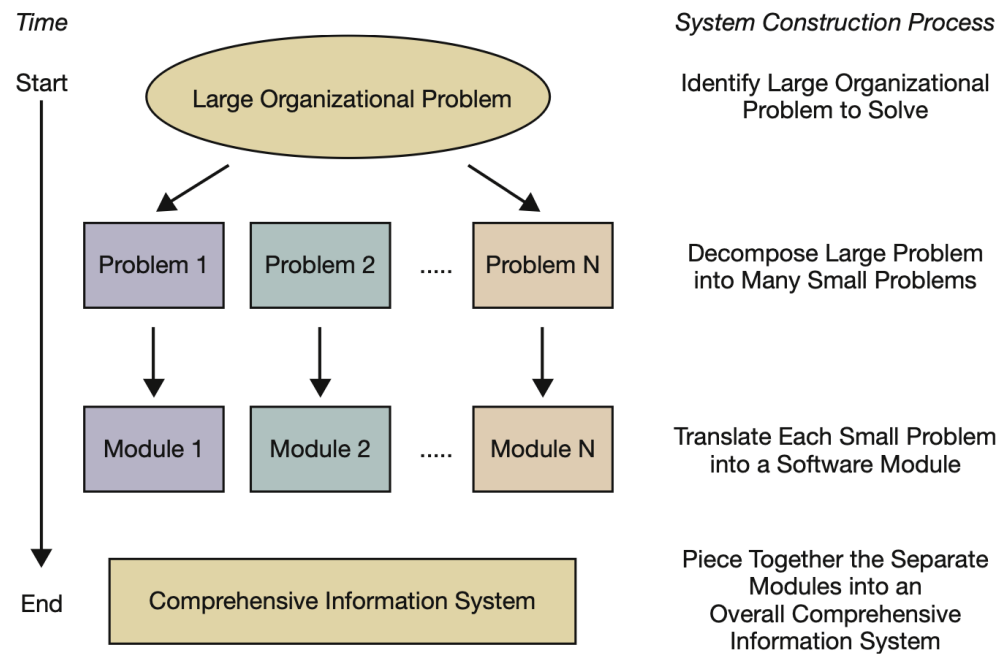
**Worksheet showing a simplified cost–benefit analysis for the Web-based order fulfillment system**



**FIGURE 9.9**

There are a variety of sources for information systems.

# IS Development in Action



**FIGURE 9.10**

Problem decomposition makes solving large, complex problems easier.

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## Steps in the Systems Development Process

Just as the products that a firm produces and sells follow a life cycle, so do organizational information systems. For example, a new type of tennis shoe follows a life cycle of being designed, introduced to the market, being accepted into the market, maturing, declining in popularity, and ultimately being retired. The term **systems development life cycle (SDLC)** describes the life of an information system from conception to retirement (Hoffer et al., 2014). The SDLC has four primary phases:

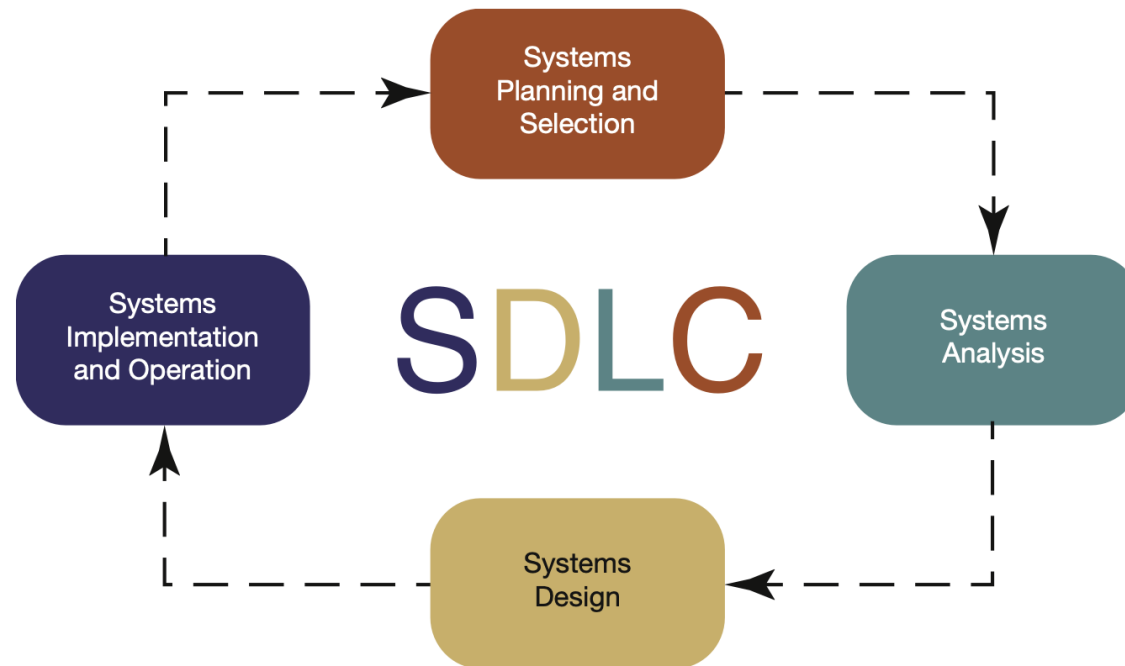
1. Systems planning and selection
2. Systems analysis
3. Systems design
4. Systems implementation and operation

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# SDLC

**FIGURE 9.11**

The SDLC defines the typical process for building systems.



Four key elements to the development of a system: requirements, data, data flows, and processing logic.

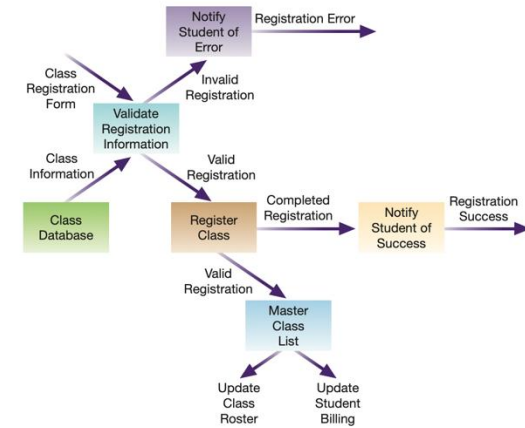
### Requirements



### Data

Name	Class	GPA
Patty Nicholls	Senior	3.7
Brett Williams	Grad	2.9
Mary Shide	Fresh	3.2

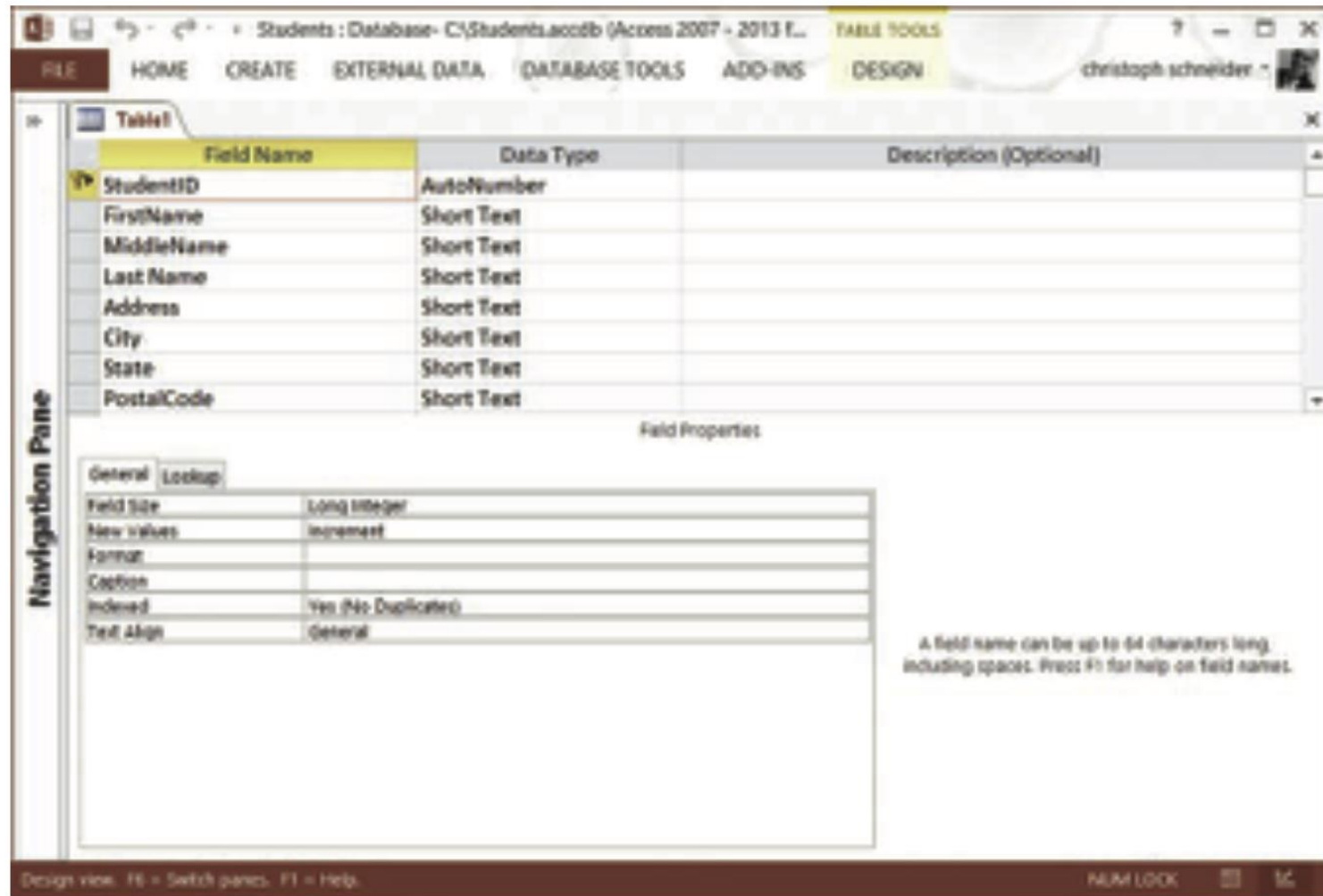
### Data Flows



### Processing Logic

```

i = read (number_of_classes)
total_hours = 0
total_grade = 0
total_gpa = 0
for j = 1 to i do
  begin
    read (course [j], hours [j], grade [j])
    total_hours = total_hours + hours [j]
    total_grade = total_grade + (hours [j] * grade [j])
  end
current_gpa = total_grade/total hours
  
```



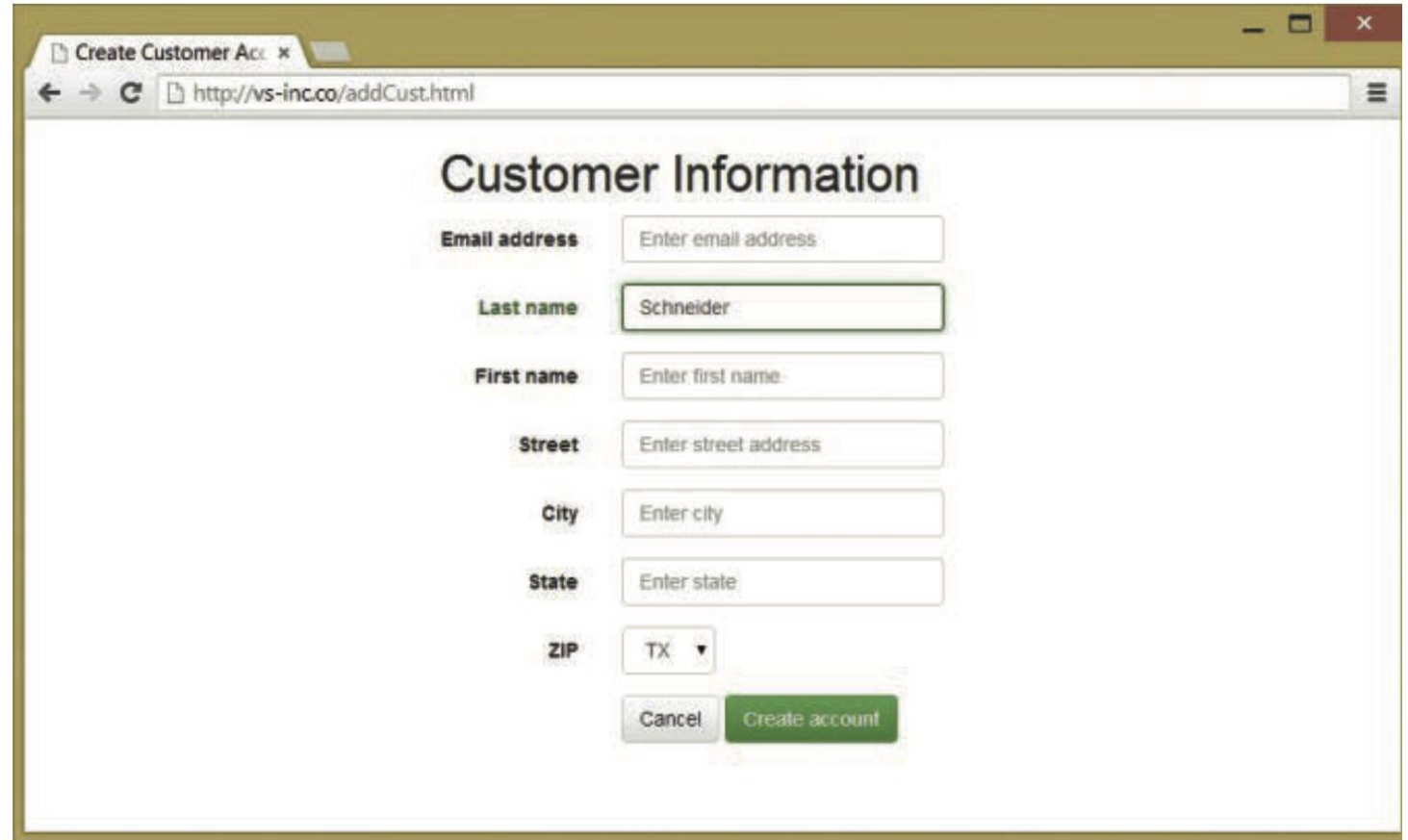
**FIGURE 9.15**

The database design for student information from an Access database.

Source: Courtesy of Microsoft Corporation.

## FIGURE 9.16

A data entry form.



The image shows a web browser window with a single tab titled 'Create Customer Acc...'. The address bar displays 'http://vs-inc.co/addCust.html'. The main content area features a form titled 'Customer Information'. The form contains the following fields and controls:

- Email address:** A text input field with the placeholder text 'Enter email address'.
- Last name:** A text input field containing the value 'Schneider'.
- First name:** A text input field with the placeholder text 'Enter first name'.
- Street:** A text input field with the placeholder text 'Enter street address'.
- City:** A text input field with the placeholder text 'Enter city'.
- State:** A text input field with the placeholder text 'Enter state'.
- ZIP:** A dropdown menu currently showing 'TX'.
- Buttons:** A 'Cancel' button and a green 'Create account' button.

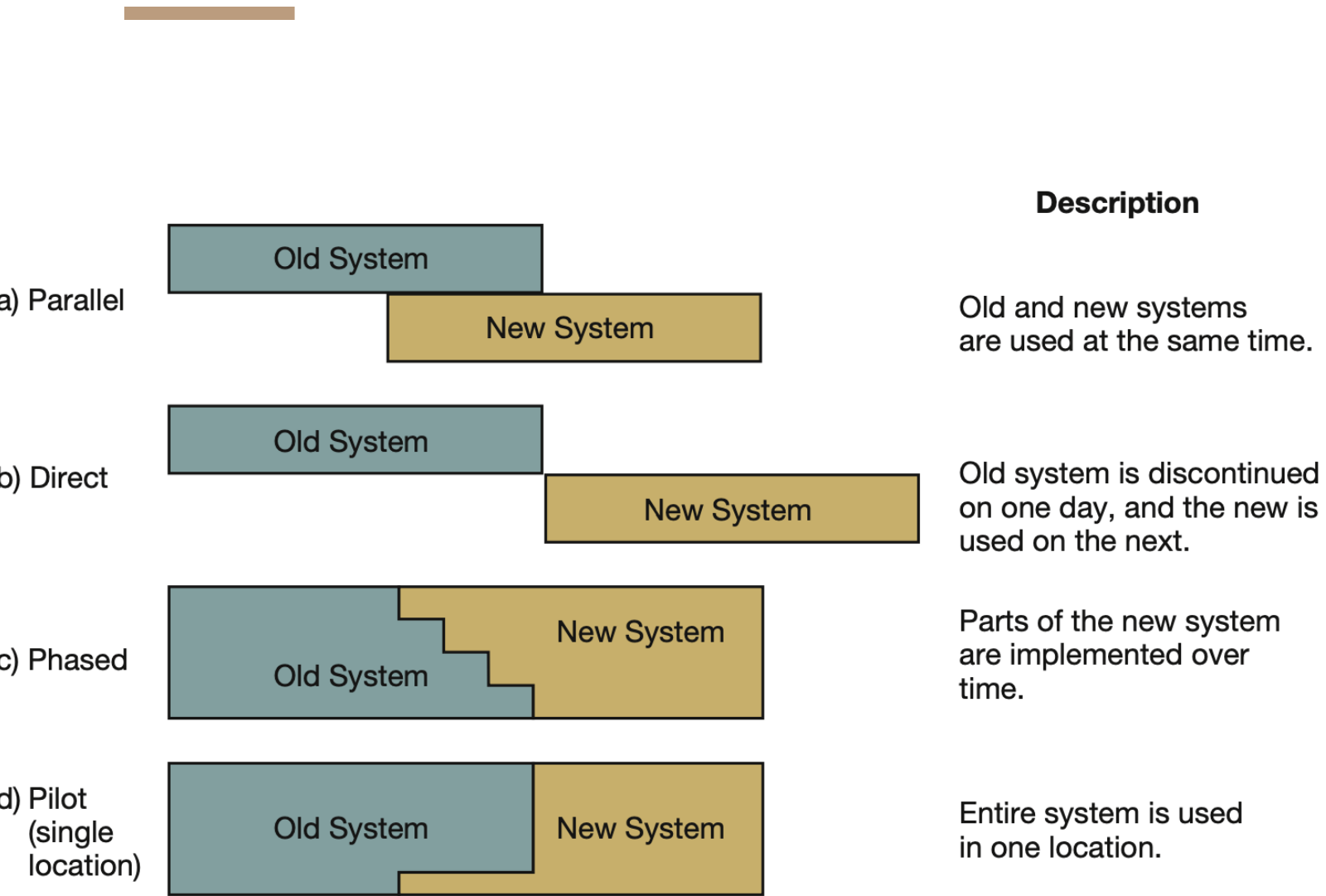
*Ascend Systems Incorporated*  
**SALESPERSON ANNUAL SUMMARY REPORT 2016**

REGION	SALESPERSON	SSN	QUARTERLY ACTUAL SALES			
			FIRST	SECOND	THIRD	FOURTH
Northwest and Mountain	Wachter	999-99-0001	16,500	18,600	24,300	18,000
	Mennecke	999-99-0002	22,000	15,500	17,300	19,800
	Wheeler	999-99-0003	19,000	12,500	22,000	28,000
Midwest and Mid-Atlantic	Spurrier	999-99-0004	14,000	16,000	19,000	21,000
	Powell	999-99-0005	7,500	16,600	10,000	8,000
	Topi	999-99-0006	12,000	19,800	17,000	19,000
New England	Speier	999-99-0007	18,000	18,000	20,000	27,000
	Morris	999-99-0008	28,000	29,000	19,000	31,000

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**TABLE 9.4** General Testing Types, Their Focus, and Who Performs Them

Testing Type	Focus	Performed by
Developmental	Testing the correctness of individual modules and the integration of multiple modules	Programmer
Alpha	Testing of overall system to see whether it meets design requirements	Software tester
Beta	Testing of the capabilities of the system in the user environment with actual data	Actual system users



**FIGURE 9.18**

Software conversion strategies.

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Terima kasih